

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A method of tracking an instrument that is inserted into the body of a patient ~~using only 2-D imagery~~, the method comprising the steps of:

a) detection of a movement signal which represents ~~the~~ movement phases of a periodic internal movement of the body, wherein the movement signal comprises both an electrocardiogram movement signal and a breathing movement signal;

b) generation of 2D images of a body volume of interest, and storage thereof in an image database together with ~~the~~ associated imaging parameters and ~~the~~ an associated movement phase;

c) measurement of ~~the~~ a spatial position of the ~~instruments~~ instrument;

d) selection of at least one 2D image from the image database, ~~which wherein~~ the at least one selected 2D image corresponds in terms of its associated movement phase to the movement phase belonging to the measured spatial position of the instrument;

e) determination of the position of the instrument on the at least one selected 2D image, wherein determining the position of the instrument on the at least one selected 2D image includes using interpolation to calculate a superposed position of the instrument on the 2D image, and wherein determining further includes compensating for a breathing-induced movement of a given body part within the body volume of interest based on a measured breathing position using a movement model of the body part; and

f) superposing the determined position of the instrument on the at least one selected 2D image.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) A method as claimed in claim 1, wherein, in step d), only 2D images from a single movement phase are available for selection from the image database, wherein the selection further includes ascertaining whether or not the single movement phase corresponds to the movement phase of the measured spatial position of the instrument, and wherein the determined position of the instrument on the at least one selected 2D image will only be represented when the movement phase of the measured spatial position of the instrument corresponds to the single movement phase of the 2D images.

5. (Previously Presented) A method as claimed in claim 1, wherein steps b) and c) to e) are carried out a number of times and in varying order.

6. (Currently Amended) A method as claimed in claim 1, wherein the associated imaging parameters in the image database ~~contains for corresponding~~ 2D images ~~from~~ include various projection directions.

7. (Previously Presented) A method as claimed in claim 1, wherein the 2D images are generated in step b) by means of X-radiation and/or ultrasound.

8. (Previously Presented) A method as claimed in claim 1, wherein at least one reference probe is fitted on a movable X-ray device which is provided for generating the 2D images.

9. (Previously Presented) A method as claimed in claim 1, wherein at least one reference probe is arranged on or in the body of the patient.

10. (Canceled)

11. (Currently Amended) An arrangement for tracking an instrument that is inserted into the body of a patient ~~using only 2-D imagery~~, the arrangement comprising:

- a) a device for generating 2D images of a body volume of interest;
- b) a unit for determining ~~the set~~ imaging parameters of the 2D image generating device;
- c) a signal measurement unit for detecting a movement signal which represents movement phases of a periodic internal movement of the body, wherein the movement signal comprises both an electrocardiogram movement signal and a breathing movement signal;
- d) a storage unit for storing an image database of 2D images of the body volume together with ~~the~~ associated imaging parameters and ~~the~~ associated movement phases;
- e) a position measurement unit for ~~determining the~~ measuring a spatial position of the instrument that is inserted into the body; and
- d) a control and computation unit for selecting at least one 2D image from the image database, ~~which~~ wherein the at least one selected 2D image corresponds in terms of its associated movement phase to the movement phase belonging to the measured spatial position of the instrument, and for determining the position of the instrument on the at least one selected 2D image, wherein determining the position of the instrument on the at least one selected 2D image includes using interpolation to calculate a superposed position of the instrument on the 2D image, and wherein determining further includes compensating for a breathing-induced movement of a given body part within the body volume of interest based on a measured breathing position using a movement model of the body part.

12. (Previously Presented) An arrangement as claimed in claim 11, wherein it is designed for carrying out a method as claimed in claim 1.

13. (Currently Amended) An instrument tracking system for tracking an instrument that is inserted into the body of a patient ~~using only 2-D imagery~~, the instrument comprising:

a) a means for generating and storing 2D images of a volume of interest in a body prior to insertion of an instrument into the body;

b) a means for measuring movement phases of a periodic internal movement of the body, wherein the periodic internal movement comprises both a cardiac system movement and a respiratory system movement;

c) a means for correlating said 2D images with said movement phases;

d) a means for tracking ~~the~~ a spatial position of the instrument upon insertion into the body;

e) a means for selecting a stored 2D image based on real-time measurement of the movement phases, wherein the selected stored 2D image corresponds in terms of its associated movement phase to the movement phase belonging to the tracked spatial position of the instrument;

f) a means for determining the position of the instrument on the selected stored 2D image, wherein determining the position of the instrument on the selected stored 2D image includes using interpolation to calculate a superposed position of the instrument on the 2D image, and wherein determining further includes compensating for a breathing-induced movement of a given body part within the body volume of interest based on a measured breathing position using a movement model of the body part; and

g) a means for superimposing the determined position of the instrument with the selected stored 2D stored image.

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Currently Amended) The instrument tracking system of claim 13, further comprising at least one reference probe positioned on at least ~~on~~ one of (i) the means for generating 2D images and (ii) the body.